

Tobacco sales to minors in 97 US and Canadian communities

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Abstract

Objective – To establish a US and Canadian baseline of the willingness of merchants to sell tobacco products to minors and to encourage improved compliance with laws prohibiting the sale of tobacco to minors.

Design – A sampling of 2337 retail tobacco merchants in 93 US and four Canadian communities were tested with 15- and 16-year-olds attempting to purchase cigarettes. Merchants in 11 US cities were retested 12 to 18 months later.

Intervention – City, state, provincial, and national governments were notified of the results.

Main outcome measures – Cigarette sales to minors.

Results – The minors were able to purchase cigarettes at 77% of US and 93% of Canadian stores in the cities sampled. Cities with tobacco ordinances ($n = 11$) did better (average purchase rate = 49%) than those without (83%). Cities in states with laws prohibiting the sale of tobacco to minors under 16 and 17 years old tended to do worse and those with a 19-year-old limit tended to do better compared to those with an 18-year-old limit. Four city governments started or modified compliance check programmes because of the survey findings.

Conclusion – It appears that merchants in very few communities in the US or Canadian cities tested are adequately complying with laws prohibiting tobacco sales to minors. Low-cost tobacco purchase surveys were of some value in stimulating enforcement, but change requires additional municipal, state and/or federal legislation and systematic and effective enforcement efforts.

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Introduction

Tobacco usage is responsible for the deaths of about 420 000 American smokers every year, a number greater than that attributed to accidents, suicide, homicide, AIDS, alcohol use, and other drug use combined.¹ An additional 35 000 Canadians are estimated to die annually from tobacco-induced illness.²

Numerous studies of the ease with which minors can purchase tobacco products in the US, Europe, and Asia have demonstrated that

a lack of respect for, and enforcement of, laws prohibiting the sale of tobacco to minors is the international norm, not the exception. In Santa Clara, California, 74% of stores sampled sold tobacco to minors.³ In Massachusetts, an 11-year-old bought cigarettes from 75% of stores tried.⁴ In Buffalo, New York, despite educational efforts directed at the merchants, 77% of stores sold to minors,⁵ while in Tokyo 97%,⁶ and in London and Norway 78% and 90%, respectively,⁷ sold cigarettes to minors. This is not just a recent phenomenon, as many of the laws in the US are over 100 years old with few reports of enforcement at any time in the past.

Studies, published and unpublished, of individual US cities since 1987 have reported that between 70% and 100% of merchants sell cigarettes to minors of varying ages.^{3-5,8,11} These studies, perhaps 20 in number, have used youths of varying ages, and different methodologies.

About half of American smokers become addicted to tobacco by the age of 18 years, before it is legal for them to purchase tobacco products.⁹ Those who start younger are more likely to be heavy smokers as adults,¹⁰ have a harder time stopping smoking, and suffer a considerably higher rate of lung cancer.

Three recent research projects have linked low-cost enforcement of tobacco age laws by police or health officials to dramatic decreases in the rates of underage smoking. A Woodridge, Illinois, study focused on 13- and 14-year-olds smoking and used youths of this age in enforcement checks.¹¹ The rates of smoking by youths of this age in the local junior high school decreased by 50% after two years of quarterly compliance checks of all tobacco merchants by police officials.

A similar study in Leominster, Massachusetts, with comprehensive compliance checks three times a year using 16- and 17-year-old teenagers found, on average, a 38% decrease in smoking prevalence for age groups from 13 to 17 years old.¹² A study in Everett, Washington, found a 22% decrease in underage smoking after less than one year of enforcement. The actual level of enforcement is not described, but was less intensive.¹³ The decreases in smoking in these three studies are among the highest ever reported in any type of teenage tobacco prevention intervention and among the least expensive.

In order to establish more uniform baseline North American measures and to encourage

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more widespread enforcement of the tobacco age laws, a 97-community tobacco purchase research project was undertaken.

Methods

This study represents a sample of 93 US communities in 37 states and four major Canadian cities in the two most populous provinces. Cities were selected based upon larger populations, and those most easily surveyed by a travelling research team. The Illinois selection attempted to cover all major Illinois cities and a sample of smaller cities and towns. Cities in other states were selected to cover as many states as possible within budgetary limitations. The purchase attempts were made between August 1991 and March 1992 for the first US survey, in June 1992 for the Canadian survey, and in winter 1993 for the Illinois follow-up study. In all US cities, 16-year-olds were used for uniformity. In Canada, 15-year-olds were used since Quebec had a 16-year-old age limit at the time of the study, while Ontario had an 18-year-old limit.

The youths were under the supervision of adults and written permission was obtained for their participation from their parents. Youths were instructed to enter the store, request a specific brand of cigarettes, pay, and leave. They were told to say they were 18 years old if asked.

In each city between 20 and 50 stores were tested. Some small Illinois towns had fewer than 20 merchants tested. The stores tested included all over-the-counter tobacco merchants passed on streets while driving randomly throughout the city. Neighbourhoods considered physically dangerous were avoided. A small number of vending machines, primarily in motels and restaurants, were also tested.

Youths used in the study were nine Caucasians and two Hispanics, six male and five female. The youths travelled by car from central Illinois one or two at a time with one or two supervising adults. Each youth was used for six to 15 cities except the two Hispanics, who were used only in Los Angeles. The purchase research in the three San Francisco Bay area cities was done by the Youth Leadership Institute staff and additional 16-year-old youths.

Youths looking markedly older or younger than 16 years old were not used in the study. An age-testing procedure of having super-market patrons guess the ages of the youths was used to aid in this determination. Several were rejected because they appeared older than 16. All but one of the youths in the study were non-smokers.

Several cities were retested to measure change over time, or to confirm initial findings. Time of day of sampling of the various cities differed considerably although all purchase attempts were made outside of normal school hours.

Truly random selection of tobacco outlets was not possible for two reasons. An actual listing of tobacco outlets was available in very

few communities due to a lack of tobacco retailer licensing. In addition, a true random selection would have been beyond the financial resources available for this study.

Cities with tobacco ordinances were those recently enacting specific legislation on tobacco sales to minors (10 cities) or announcing a specific programme of enforcement using existing health licenses (Providence, Rhode Island). Only two of the 11 cities that were placed in this category were actually doing any enforcement at the time of our initial surveys (Woodridge and Bolingbrook, Illinois). Information on enforcement practices was obtained by telephone contact with appropriate city officials, or local citizen groups.

Results

A total of 2337 purchase attempts were made as part of this study. The overall purchase rate in the US was 77% and in the four Canadian cities 93%; in other words, 23% of US but only 7% of Canadian merchants refused to sell cigarettes to the youths involved in this study. The individual cities are listed in table 1.

Only relatively minor differences were found between purchase rates for the nine different youths used in more than one city each, although they were usually sampling different cities. Each youth had at least one city where 94% or more of merchants sold tobacco to that youth. The four cities with the lowest purchase rates were each coincidentally sampled by a different youth.

Little difference in refusal rates was noted between male and female youths used in this study. In the US part of the study, male youth purchased cigarettes 78% of the time, while female youth purchased 75% of the time.

Sixteen communities had a 100% purchase rate, while only four cities had purchase rates under 40%. Nine of the cities tested had tobacco ordinances at the time of this initial survey although only two were doing any enforcement. Two later added ordinances and were retested. These 11 cities had an average purchase rate of 49% compared to 83% for the 88 cities without ordinances (two cities are in both categories). When analysed by the total number of purchase attempts, the proportion of refusals in cities with an ordinance was 51% (147/287), compared to 24% (440/1851) for cities without an ordinance ($\chi^2 = 92.6$, $p < 0.001$).

In the US cities tested in states with a lower age limit, ie, 16- and 17-year-old age limits (Kentucky, Georgia, Delaware), had a much lower average refusal rate (3%) than those in states with an 18-year-old age limit (23%). The two cities tested in states with 19-year-old age limits (Utah and Alabama) had a much higher average refusal rate (54%). When analysed by the total number of purchase attempts, the proportions of refusals were 3.2% (2/63), 25.7% (473/1842), and 65.8% (27/41) for cities in states with a 16- or 17-year-old age limit, an 18-year-old limit, or a 19-year-old limit, respectively (χ^2 for linear trend = 47.4, $p < 0.001$). The two Ontario

Table 1 Tobacco purchase rates in 97 US and Canadian communities

Tobacco purchase rates (%)			
Cities in the US			
Alabama: Mobile (25)	64	New Orleans (20)	87
Arkansas:		Maryland: Baltimore (20)	90
Little Rock (25)	4	Michigan: 5 Detroit suburbs (30)	17
retest (15)	13	Minnesota: Minneapolis (25)	44*
Arizona: Tucson (30)	83	Mississippi:	
California:		Gulfport (20)	90
Los Angeles (30)	80	Pascagoula (20)	100
Oakland (30)	90	Missouri:	
San Diego (30)	87	Kansas City (25)	100
San Francisco (30)	88	St. Louis (76)	86
San Jose (30)	92	retest after ordinance (15)	47
Colorado: Denver (25)	52	Nebraska: Omaha (25)	64
Connecticut: New Haven (20)	100	Nevada: Las Vegas (25)	100
Delaware: Wilmington (25)	92	New York:	
District of Columbia (25)	84	Albany (20)	100
Florida:		Brooklyn (25)	100
Jacksonville (20)	70	Manhattan (25)	88
Pensacola (20)	60	New Jersey: Trenton (25)	72
Tallahassee (20)	53	New Mexico: Albuquerque (25)	72
Georgia: Savannah (20)	100	North Carolina:	
Illinois:		Durham (20)	85
Bloomington (1991) (25)	92	Raleigh (20)	80
Bloomington (1993) (17)	100	Ohio:	
Bolingbrook (10)	40*	Dayton (20)	55
Champaign (1991) (25)	92	Toledo (20)	40*
Champaign (1993) (20)	80	Oklahoma: Oklahoma City (25)	92
Charleston (16)	94	Pennsylvania:	
Charleston (12)	100	Philadelphia (25)	100
Chicago (1991) (30)	53*	retest 1992 (20)	100
Chicago (1992) (30)	87*	Rhode Island:	
Mattoon (1991) (19)	79*	Providence (25)	92
Mattoon (1993) (15)	54*	after ordinance (25)	72*
Normal (1991) (10)	90	South Carolina: Columbia (25)	80
Normal (1993) (13)	100	Tennessee: Memphis (35)	66
Peoria (1991) (25)	92	Texas:	
Peoria (1993) (28)	92	El Paso (20)	85
Schaumburg (1992) (20)	50*	Dallas (25)	80
Schaumburg (1993) (52)	52*	Fort Worth (20)	65
Springfield (1991) (37)	86	Houston (25)	84
Springfield (1993) (22)	86	Virginia:	
Urbana (1991) (18)	94	Alexandria (20)	65
Urbana (1993) (20)	85	Richmond (20)	85
Woodridge (10)	70*	Utah: Salt Lake City (25)	28*
22 more towns & cities	85	Wisconsin:	
Indiana:		Madison (20)	55
Ft. Wayne (20)	54	Milwaukee (25)	76
Indianapolis (20)	0*	Wyoming: Cheyenne (25)	68
Iowa: Des Moines (25)	48	Cities in Canada	
Kansas: Topeka (25)	88	Quebec City (20)	100
Kentucky: Paducah (20)	100	Toronto (30)	97
Louisiana:		Montreal (20)	95
Baton Rouge (20)	100	Ottawa (20)	85

* Cities with tobacco ordinances.
Numbers in parentheses = number of merchants tested.

Table 2 Cigarette sales to minors by type of retailer*

Type of retailer	Sales to minors (%)	Number of outlets selling/number of stores tested
Restaurants/motels	100	32/32
Convenience stores/delis	83	237/285
Gas stations	79	490/619
Groceries/supermarkets	73	194/267
Liquor stores/bars	68	66/97
Pharmacies	68	28/42

* This analysis covers 1342 stores.

cities with an 18-year-old age limit had an average refusal rate of 9.0% vs 2.5% for the two cities in the province of Quebec which has a 16-year-old age limit.

Purchase rates differed according to the type of establishment tested, as shown in table 2.

Among cities sampled more than once, the findings were consistent. On separate occasions three months apart using two different youths, Little Rock, Arkansas, merchants were found to be very reluctant to sell tobacco products to the 16-year-olds (purchase rates of 4% and 13%). In other cities tested twice, the three cities that had instituted specific measures to

decrease sales to minors showed some improvement, while those without new ordinances or new enforcement of existing ordinances did not show overall improvement. Those without changes in tobacco ordinance status or enforcement and their first and second purchase rates were: Philadelphia, Pennsylvania, (100% and 100%), Chicago, Illinois (IL) (54% and 87%), Charleston, IL, (94% and 100%), Bloomington, IL, (92% and 100%), Normal, IL, (90% and 100%), Champaign, IL, (92% and 80%), Schaumburg, IL, (50% and 52%), Urbana, IL, (94% and 85%), Springfield, IL, (86% and 86%), Peoria, IL, (92% and 82%). Chicago and Schaumburg both had unenforced tobacco licensing ordinances.

The two cities starting compliance checks of a small number of merchants and with merchant fines for sales to these minors after the first survey showed small improvements: Providence, Rhode Island (92% and 77%), and Mattoon, IL, (79% and 52%). After the initial survey, St. Louis, Missouri, passed a tobacco ordinance without enforcement. Merchant compliance improved as would have been

predicted by the average compliance rates of cities without and with tobacco ordinances (86 % and 47 %).

Of the two small Illinois communities already doing regular enforcement checks, Woodridge had been using 13-year-olds and reporting a purchase rate of 4 %. We found a purchase rate of 70 % when a 16-year-old was used. The second community, Bolingbrook, had been doing quarterly checks of all merchants with 16- and 17-year-olds with a police purchase rate of 18 % only to have this rate jump to 35 % after a six-month lapse between police checks. In our survey it was 40 %.

In Little Rock, Arkansas, all 12 attempts to purchase at gas station vending machines were unsuccessful. Of seven Schaumburg vending machines with automatic locking devices to be activated by restaurant staff, and tested in the 1993 sample, five purchases were made as the machines had been left in an activated state. Of 52 other vending machine purchase attempts in the study, no more than three in any one city, 50 attempts were successful.

Discussion

The overall US purchase rate of 77 % was very disappointing but consistent with previous studies of individual cities.^{3,4,8} Because of the small number of merchants tested in each city and lack of true random selection, the figures for individual cities should only be considered rough approximations of the true rates.

The decision to have the underage youths say that they were 18 years old was based on a small survey of 20 underage smokers in Decatur, Illinois, before the study. That survey found that 75 % reported they lied when confronted about their ages while attempting to purchase cigarettes. Most of the rest had never been confronted. Although, because of a past court ruling on police compliance checks of alcohol age law enforcement,¹⁴ police do not allow minors under their supervision to misrepresent their ages in alcohol compliance checks, to have done so in this study would have underestimated the true rate at which merchants are willing to sell cigarettes to minors without requiring reasonable proof of age.

The percentage of merchants selling to minors after the minors misrepresented their ages in this study was only 10 %. This means that only a few merchants will accept the word of a person who appears 16 years old but states he is 18 years old.

At no time during or after the study were the youths threatened with arrest despite having been turned down over 500 times. In roughly half the states tested, it was illegal for youths to attempt to purchase cigarettes. Merchants were not aware that the youths involved were part of a research project. Even in cities such as Rockford, Illinois, and Des Moines, Iowa, where legislation had recently been enacted with considerable news media coverage to fine youths up to \$500 for purchasing cigarettes,

we found high buy rates and no effort to arrest the youths in establishments where they were refused. This suggests that such laws result in no change in merchant behaviour. We also think that these large fines, higher than many communities impose on merchants who illegally sell tobacco products to minors, are excessive.

Although a 16-year-old was used in Kentucky where the minimum age for legal sales was 16 at the time of this study, no establishment asked the youth's age or requested to see proof of age. Since there is a wide variance in age appearance according to our own experience with age testing, a fair number of 14- and 15-year-olds will look the same age as the youth we used in the study. The 100 % purchase rate in the Kentucky city is probably reflective of a serious problem with merchant sales to minors.

The results obtained in the eleven cities retested in our study suggest that a sizeable change in merchant behaviour is unlikely to occur in the absence of specific enforcement intervention. This is also similar to findings in other reports of single cities.^{5,15-17}

The city mayor's office in each city and governor's office in each state had also been notified of the research findings after the first purchase study. Only the cities of Mattoon and Schaumburg, Illinois, and Providence, Rhode Island, are known to have begun specific programmes in response to this study. In each case compliance check programmes have been used. Schaumburg and Mattoon already had unenforced tobacco ordinances, while Providence used a variety of existing health and liquor licensing requirement to enforce the tobacco age law.

Of the cities studied, only Schaumburg has instituted a comprehensive compliance check programme of all merchants. The 1993 Schaumburg figures in this paper reflect the beginning of that programme. Woodridge, Illinois, the fourth city instituting changes because of the findings of this study, revised its testing procedure and started using 16- and 17-year-old youths instead of 13-year-olds after becoming aware that merchants were selling much more readily to older minors. Woodridge now reports a purchase rate by 16- and 17-year-olds of under 30 %.

The relatively small response by city and state governments following this tobacco purchase research study is in contrast to a much better response found by two research projects on alcohol sales to minors.¹⁸⁻²⁰ In these studies, many more of the cities surveyed made specific changes in enforcement procedures, often instituting episodic or comprehensive compliance check programmes.

This poor short-term response to the tobacco purchase findings by governmental bodies compared to response to the alcohol purchase research may be due in part to a lack of already established governmental agencies assigned responsibility for enforcing the law prohibiting the sales of tobacco products to minors. Even the passage of excellent new licensing laws did not lead to enforcement in eight out of ten cities in this study.

The number of cities with age laws other than 18 in this study is small, but the trend is in the direction of better compliance with a higher age limit. This suggests that raising the tobacco age limit may help to decrease access to tobacco products among minors already under the existing legal age limit. This finding adds additional support to calls for a 19-year-old²¹ or a 21-year-old tobacco age law.

The 100% purchase rate of sales in restaurants and motels was due to the fact that these were almost all vending machine purchases. Pharmacies and liquor stores had the lowest purchase rates (68%).

Of interest is the possibility that enforcement of alcohol sales and of tobacco sales to minors may have an effect on each other. Besides the above-noted lower sales rate for liquor stores, three of the four cities that did well in our tobacco survey (Little Rock, Salt Lake City, and suburban Detroit) had active alcohol compliance check programmes, something still uncommon in the US.^{18,19}

The higher sales rate in Canada with only 7% of merchants refusing to sell *vs* 23% in the US might be a chance finding, or may be due to specific factors. These may include the lack of any Canadian city tested having had a specific tobacco licensing ordinance, the lower 16-year-old tobacco age limit in Quebec, and the lower 18-year-old drinking age laws in Ontario and Quebec *vs* the 21-year-old drinking age law in the US. Although the US figures are quite poor, they appear somewhat better than those of other countries where similar studies have been conducted on tobacco sales to minors (references 6 and 7 and unpublished data for Brazil, Uruguay, and Argentina collected by the author).

The data from this study, when combined with other reports of tobacco purchase research, suggest that model licensing laws *per se* do not adequately limit access to tobacco products by minors. This study was unable to sample enough communities actually enforcing their tobacco age laws to draw any conclusions on the optimal frequency of enforcement. However, other studies have demonstrated dramatic decreases in the willingness of merchants to sell tobacco products to minors when serial compliance checks are done.^{11,12,17}

US legislation, referred to as the Synar Amendment, enacted after the completion of this study, requires states to start enforcing their laws prohibiting the sales of tobacco to minors and to supply the federal government with the results of annual random compliance checks as evidence of the success of this enforcement by 1994.²² States not in compliance will be at risk of losing 10% to 40% of their federal grant funds for substance abuse.

At the time of our initial survey, no city sampled was conducting quarterly compliance checks using 16- to 17-year-old youths as would appear most effective based on the Woodridge and Leominster research.^{11,12} Research with alcohol sales to minors in the US shows that communities doing compliance checks of all vendors have a clear pattern of lower buy rates.¹⁸ All seven communities doing

compliance checks of all alcohol merchants several times a year reported purchase rates of under 20%, averaging 14%. Based on this and the tobacco enforcement experience, tobacco purchase rates by a 16-year-old of under 30% for tobacco should be easily accomplished and a rate of under 20% is a reasonable long-term goal. This 20% long-term goal has recently been proposed by the US Department of Health and Human Services for states to meet under the Synar Amendment.²³

The cost of quarterly tobacco compliance checks is estimated by us at \$35 per establishment per year, a cost which is easily covered by the \$50-\$70 annual licensing fee assessed by most communities with tobacco ordinances (or by a \$300 fee recommended for most retailers by the Department of Health and Human Services²¹). The cost of compliance checks is based on our own experience assisting city inspectors in Mattoon and Schaumburg, Illinois, as well as the experience of Woodridge, Illinois. Initially six to seven establishments have been able to be surveyed per hour. This number of establishments per hour increases somewhat in later enforcement efforts as fewer establishments sell to minors and less time is taken writing out citations and talking to store managers. The cost for the youth (with fringe benefits) is calculated at \$7.50 per hour and the adult at \$15 per hour, allotting half of the inspector's time for hearings and office work and half for compliance checks with the youth. A number of small added costs and supervision costs account for the rest. Other factors such as two adult inspectors instead of one, use of police inspectors, criminal trials, longer store visits, a smaller percentage of time visiting stores, etc, may considerably increase this cost figure.

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Nicorette Patch is manufactured by Kabi Pharmacia.

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